The middle-arm fistula as a valuable surgical approach in patients with end-stage renal disease

Hemodialysis access evaluation is generally accomplished using angiography with a catheter inserted directly into the arteriovenous (AV) access circuit followed by contrast injection for imaging from the arterial anastomosis through the central venous system. In 2009, the catheterization was reported with CPT code 36145 for catheter placement and CPT code 75790 for the imaging component. The American Medical Association/Specialty Society Relative Value Scale Update Committee (or RUC) flags any code pairs reported together over 75% of the time. Such was the case for CPT codes 36145 and 75790. Once captured by this screen, the specialty societies were required to bundle the two work efforts into a new CPT code followed by re-evaluation of the associated reimbursement. In 2010, CPT code 36147 became valid through the efforts of the American Society of Diagnostic and Interventional Nephrology (ASDIN), the American College of Radiology (ACR), the Society for Interventional Radiology (SIR), and the Society for Vascular Surgery® (SVS). This new bundled code describes both the work of establishing single-catheter access with the diagnostic contrast imaging of the dialysis circuit. The new description defined the access circuit imaging from the arterial anastomosis of the access to the superior vena cava in the arm and from the arterial anastomosis to the inferior vena cava in the leg. Therefore, inferior cava venography (CPT code 75825) and superior cava venography (CPT code 75827) are never appropriate to report with CPT code 36147 regardless of catheter manipulation, unless a completely separate puncture outside the access circuit is obtained. CPT code 36147 also includes occlusion of the outflow by balloon or external pressure for the purpose of retrograde evaluation of the arterial anastomosis. Additionally, advancing the catheter centrally into the superior or inferior vena cava does not alter the coding for the procedure as of 2010.

In the new coding scheme, situations exist where direct catheter placement into the hemodialysis shunt is not performed. Another newly created CPT code (75791) describes the performance of a radiological evaluation through an already existing access into the shunt or from a catheter that is not a direct puncture of the shunt. For example, a patient may have their fistula cannulated in the hemodialysis center and the catheter left in place with a stopcock. After transport to the imaging suite, contrast is injected into the already present access. Since there is no work of directly puncturing the AV access by the interventionalist, only the imaging is reported by CPT code 75791. Alternatively, a retrograde femoral arterial puncture is performed and the catheter is placed into the aortic arch, then into the left subclavian artery, and finally into the brachial artery near the arterial anastomosis of the AV access. Contrast injection in this situation also does not involve direct AV access puncture so CPT code 75791 would be submitted. Other catheter and imaging codes may be appropriate using component coding guidelines. When a second catheter access is required, usually for therapeutic purposes, the new add-on CPT code 36148 describes the additional work associated with the subsequent catheterization. CPT codes 36145 and 75790 were deleted in 2010 concurrent with the addition of these three new codes.

As stated, CPT code 36147 includes all the necessary catheter placement and manipulation to perform a graft/fistula diagnostic radiological study, but the work of CPT code 36215 (*selective catheter placement, arterial system; each first order thoracic or brachiocephalic branch, within a vascular family*) is not inherent to the work of 36147. When a catheter is maneuvered from a puncture of the dialysis graft/fistula into the proximal inflow vessel for formal extremity diagnostic arteriography, CPT code 36215 is reported. Positioning the catheter tip simply at or near the arterial anastomosis of the AV access is not an appropriate use of CPT code 36215. If such an inflow catheterization is performed as the sole graft puncture coupled with diagnostic access imaging, the physician would report CPT codes 75791 and 36215. However, if a similar situation exists with an additional catheter oriented antegrade in the AV access circuit (total of two separate catheters directly in the AV access), CPT codes 36215 and 36147 would be reported together (potentially in addition to the unilateral extremity arterial imaging CPT code 75710).

Lastly, situations may arise where selective catheterization of one or multiple outflow (draining) veins off the AV access is necessary (ie, use of 36011). The new bundled coding includes the catheterization within the circuit and the angiography. However, selective catheterization within branch draining veins off the circuit is not bundled and is separately reportable. Single-catheter placement into the access, angiography from arterial anastomosis to the SVC, and subsequent draining vein first order venous catheterization would be reported using both CPT codes 36011 and 75791 instead of the bundled 36147 code.

For angioplasty billing purposes, the AV access circuit is defined from the arterial anastomosis up to and including

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the axillary vein as one vessel. The subclavian vein, innominate vein, and superior vena cava are considered three separate vessels for treatment. Prior to 2007, venous percutaneous transluminal angioplasty was billed using CPT codes 35476 and 75978 while arterial percutaneous transluminal angioplasty of the upper extremity required 35475 and 75962. In 2007, the governmental G0392 (*Transluminal balloon angioplasty, percutaneous; for maintenance of hemodialysis access, arteriovenous fistula or graft; arterial*) and G0393 (*Transluminal balloon angioplasty, percutaneous; for maintenance of hemodialysis access, arteriovenous fistula or graft; venous*) codes were introduced into the Medicare Physician Fee Schedule final rule. G0392 was paired with CPT code 75962, while G0393 was associated with CPT code 75978. No direction was provided despite multiple letters by the SVS and other professional organizations. These G codes have been removed in 2010, which reverts the AV access endovascular therapy reporting standards back to the pre-2007 guidelines.

Stenting of the arterial inflow or venous outflow requires use of CPT codes 37205 and 75960 with a percutaneous approach for the first vessel and 37206 with 75960 for each subsequent vessel. When a covered stentgraft is required, no difference is coding or reimbursement exists.

CPT code 36870 specifically describes percutaneous mechanical thrombectomy in hemodialysis fistula as well as AV autogenous or non-autogenous grafts and is separately reportable.

Sean P. Roddy, MD
The Vascular Group, PLLC
43 New Scotland Avenue
MC157
Albany, NY 12208
(e-mail: roddys@albanyvascular.com)